

REMARKS

Claims 1-29, all the claims pending in the application, stand rejected. Applicants have amended claims 1, 4-10, 12, 16, 20, 21 and 28. Claims 11 and 22-27 have been canceled. Thus, claims 1-10, 12-21 and 28-29 remain pending.

Drawings

The Examiner requires Figs. 1 and 2 to be designated by the legend "Prior Art." Applicants have amended the drawings as requested and replacement sheets are provided herewith.

Claim Rejections - 35 U.S.C. § 112

Claims 1-6, 10, 11, 13 and 17-19 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite.

This rejection is traversed for at least the following reasons.

Claims 1-3

The Examiner comments that it is unclear where the vibration damping assembly is claimed to be located. This rejection is overcome on the basis of the amendment to claim 1.

With respect to claim 3, Applicant notes that the Examiner has interpreted the claim to mean that the vibration damping assembly is coupled between the first coupling portion (at the first axial end or inlet) and the second coupling portion (at the mid section of the pump). This understanding is confirmed, as it encompasses the exemplary embodiment of Fig. 6 where the damper 250 is coupled between the rigid structure 280 and the radial support 207.

Claim 4

The Examiner finds the phrase "said coupling" to be ambiguous as there are two couplings introduced in claim 3. An appropriate clarifying amendment has been made.

Claim 6

The Examiner finds it unclear as to what is referred to by the phrase "being coupled between said pump.". The Examiner questions whether it is the second connection structure at its first end or its second end. Furthermore, the Examiner asserts that the phrase "and its first end" to be unclear. Appropriate amendments to the claim have been made to clarify this subject matter.

Further, with respect to claim 6, the Examiner finds it unclear as to where exactly the second connection structure is coupled. The Examiner questions whether the second connection structure is coupled between the pump inlet and the second end of the first connecting structure. The Examiner instructs the Applicant to identify what is considered the second connecting structure and what components are coupled therebetween. An appropriate change to the claim has been made.

Claims 5, 6 and 10

The Examiner finds the recitation of a "first flexible connection structure" in claim 5, a "second rigid connection structure" in claim 6 and a "second flexible connection structure" in claim 10 to be unclear. The Examiner notes that having a second rigid connection structure implies that there is a first rigid connection structure, although not as claimed. Further, the Examiner finds that the second connection structure cannot be both flexible and rigid. The Examiner assumes that there are at least a single rigid connection structure and at least two flexible connection structure. Applicants have removed the basis for the Examiner's comment by revising these claims.

Claim 11

The Examiner comments that if the first connection member is between the rigid mounting structure (at the inlet of the pump) and the second connection member, it is unclear how the second connection member is between the first axial end at the inlet of the pump and the first connection member. The Examiner notes that the second connection structure (153) is

flexible and coupled between the pump (1) at the first axial end and the first connection structure (151a).

This claim has been cancelled.

Claim 13

The Examiner finds the phrase "connected for extraction by atmospheric pressure" to be unclear and interprets this phrase as exposing the bellows to atmospheric pressure. Applicants respectfully submit that one skilled in the art would understand that the bellows are made to be expanded by the force of atmospheric pressure on one side thereof.

Claim 16

The Examiner notes that the claim (mistakenly referred to as 17) recites "said major portion" and finds insufficient basis for this structure. An appropriate amendment to the claim has been made.

Claims 18 and 19

The Examiner refers to the phrase "with said coupling" and finds it ambiguous as to whether Applicant is referring to the first coupling, the second coupling or both. An appropriate amendment to the claim has been made.

Claim Rejections - 35 U.S.C. § 102

Claims 1-4, 18, 19, 22, 23, 24 and 26 are rejected under 35 U.S.C. § 102(e) as being anticipated by Adamietz et al (6,814,550). This rejection is traversed for at least the following reasons.

The Examiner refers to Fig. 2 of Adamietz for a teaching of a gas turbo pump assembly for coupling to a chamber port (14) comprising a turbo pump (1) having a pump body (2) with an external surface (shown) in a center axis that defines a first axial end (top) and a second axial end (bottom) of the pump (1), and a pump inlet port (5). The Examiner finds the pump (1) to include an exit port (not shown but described at col. 2, line 6) and a vibration damping assembly (7, 8, 9, 17, 18) disposed to enclose a significant portion of the pump body (2) in a nested arrangement.

The Examiner finds a vibration damping assembly having a first opening (at the top) adapted for coupling to the inlet port (5) of the pump and a second opening adaptor to receive a substantial portion of the pump (1).

Notably, Adamietz teaches only a single nested structure for vibration damping, as the absorber 7 alone is coupled between the radial rim 24 and a seal ring 17 that is attached to the body of the pump 1.

By contrast, the present invention, as disclosed and now claimed, has a first and second nested structures for vibration damping. As illustrated in Figs. 3, 4 and 5, the vibration damping assembly can comprise a combination of a rigid support structure 240 that is disposed adjacent to the outer surface of the turbo pump, and a flexible damping structure 250, which may include a rubberized support 252 and bellows 253, that is disposed outside of the rigid support structure 240 in a nested manner, as in Fig. 3. The rigid support structure may be a single piece of material in the form of a shroud or plural ribs. In either case, the structure has an inner peripheral surface and an outer peripheral surface. Alternatively, the vibration assembly can comprise a combination of a flexible damping structure 250', which may comprise a bellows 248, that is disposed adjacent to the outer surface of the turbo pump, and one of a rigid structure 240' that is disposed outside of the flexible damping structure 250 in a nested manner, as in Fig. 4, or a flexible damping structure 250, which may include a rubberized support 252 and bellows 253, that is disposed outside of the bellows 248 in a nested manner, as in Fig. 5.

The Examiner does assert that the vibration damping assembly in Adamietz comprises a second flexible connection structure (8) having a first end (top) and a second (bottom) coupled between the pump (1) at the first axial end and the second end of the first connecting structure (7) at the second end of the second connection structure (8). The Examiner asserts that both the first connection structure (7) and the second flexible connection structure (8) are flexible and are adapted to reduce both compression and extraction forces.

However, the Examiner erroneously counts the same structure twice, as the vibration absorber 7 is defined to include a suspension body 8 and an absorber jacket 9. There are only

two elements in the absorber 7. At best, the absorber 7 may correspond to the damper 250 in Fig. 3 of the present application. Adamietz does not have any other internally nested structure that corresponds to the bellows 248 in Figs. 4 and 5, or the internally rigid support 240 in Fig. 3.

There is no teaching or suggestion that the suspension body may be a bellows, nor is there any teaching that there may be another damping structure, particularly one that absorbs both compression and extraction forces, as in Fig. 6. Clearly, there is no teaching of a combination of rigid and flexible members in a nested arrangement around a turbo pump.

Claim Rejections - 35 U.S.C. §103

Claims 1-29 are rejected under 35 U.S.C. §103(a) as being unpatentable over the Applicants admitted prior art (Figs. 1 and 2), referred to as (APA) in view of Adamietz.

The Examiner points to all the structures in Figs. 1 and 2 of the APA and notes that it differs from the claimed invention in that there is no teaching of the vibration damping assembly being disposed to enclose a significant portion of the pump body in a nested arrangement.

The Examiner points to Adamietz et al in Fig. 2 for a teaching of a similar pump within a vibration damping assembly disposed to enclose a significant portion of the pump body in a nested arrangement to reduce the total height of the pump assembly and achieve a compact design (col. 2, lines 53-57). The Examiner finds it would have been obvious to modify the APA by incorporating the nested arrangement as taught by Adamietz et al. The Examiner finds it would have been obvious to have the vibration damper in the APA enlarged radially to accommodate a substantial portion of the pump 100 as suggested by Adamietz at Fig. 2. It also is considered obvious to one skilled in the art that the bottom end of the vibration damper assembly needs to be anchored to the mid-section of the pump body as taught by Adamietz in Fig. 2. The Examiner finds in the APA the structure and arrangement of the first coupling portion (170, 180), second coupling portion (102, 151a, 160) second rigid connection structure (151b), first connection structure (150), bellows (153), second flexible connection structure (153) and pump facilities (110). Finally, the Examiner notes with respect to the span of the significant

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portion being between 50% and 70% of an external side surface of the body, these limitations would not be inventive on the basis of cited case law.

On the basis of the foregoing analysis with respect to Adamietz alone, Applicants would respectfully note that the claims have been amended in a manner that distinguishes over prior art in Figs. 1 and 2 as well as Adamietz. There is no teaching or suggestion in Adamietz that first and second nested structures can be used with a turbo pump. Moreover, there is no teaching or suggestion in the APA that plural nested support and vibration suppression structures can be used. Notably, the vibration suppression structure in the APA does not comprise nested rigid or flexible structures.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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